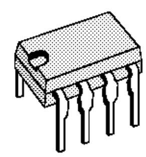
SGS-THOMSON MICROELECTRONICS

TDA8145

TV EAST/WEST CORRECTION CIRCUIT FOR SQUARE TUBES

- LOW DISSIPATION
- SQUARE GENERATOR FOR PARABOLIC CURRENT SPECIALLY DESIGNED FOR SQUARE C.R.T. CORRECTION
- EXTERNAL KEYSTONE ADJUSTMENT (symmetry of the parabola)
- INPUT FOR DYNAMIC FIELD CORRECTION (beam current change)
- STATIC PICTURE WIDTH ADJUSTMENT
- PULSE-WIDTH MODULATOR
- FINAL STAGE D-CLASS WITH ENERGY REDELIVERY
- PARASITIC PARABOLA SUPPRESSION, DURING FLYBACK TIME OF THE VERTICAL SAWTOOTH



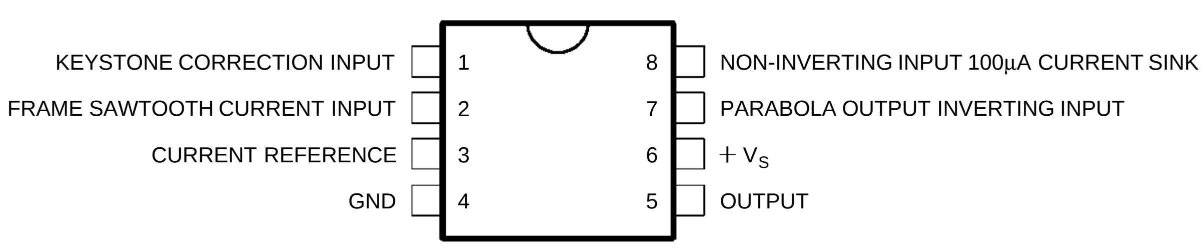
DIP8
(Plastic Package)

ORDER CODE : TDA8145

DESCRIPTION

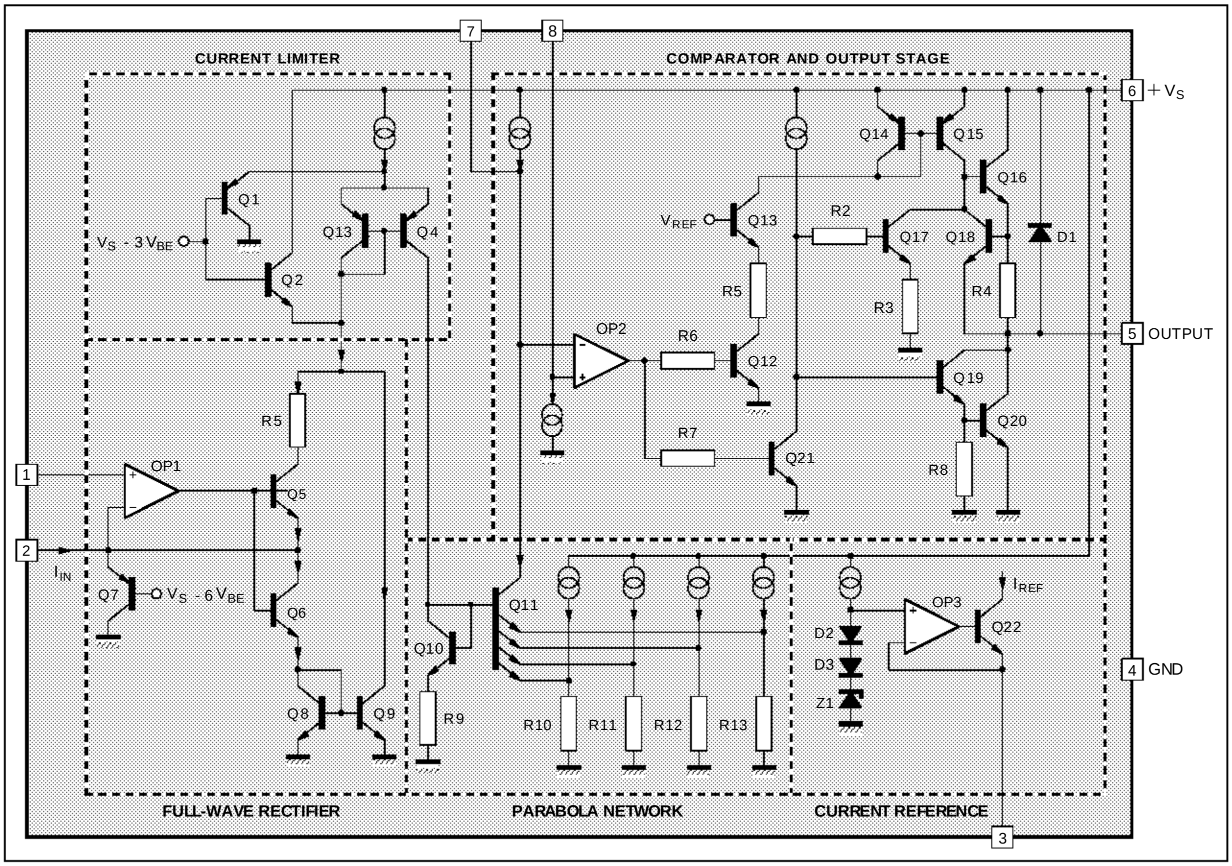
The TDA8145 is a monolithic integrated circuit in a 8 pin minidip plastic package designed for use in the square C.R.T. east-west pin-cushion correction by driving a diode modulator in TV and monitor applications.

PIN CONNECTIONS (top view)



8145-01.EPS

SCHEMATIC DIAGRAM



8145-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	35	V
I_s	Supply Current	500	mA
P_{tot}	Power Dissipation at T_{amb} = 50 °C	500	mW
T_{stg}, T_j	Storage and Junction Temperature	– 25 to 150	°C

8145-01.TBL

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ (j–c)}$	Thermal Resistance Junction-ambient	Max.	100	°C/W
$R_{th\ (j–a)}$	Thermal Resistance Junction-pin 4	Max.	70	°C/W

8145-02.TBL

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C, V_S = 26V, V_{fr} = 0, S1 and S2 in "a" position, refer to the test circuit unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Supply Voltage		17	24	30	V
I_S	Supply Current			4.5	7	mA
V_{ref}	Internal Reference Voltage		7.6	8.0	8.8	V
$– I_{ref}$	Internal Reference Current	V_{ref}/R3		0.73		mA
$V_{7(A)}$ (*)	Pin 7 Output Voltage	I_{fr} = 0 µA	15.3	16.0	16.7	V
$V_{7(B)}$ (*)	Pin 7 Output Voltage	I_{fr} = 30 µA		15		V

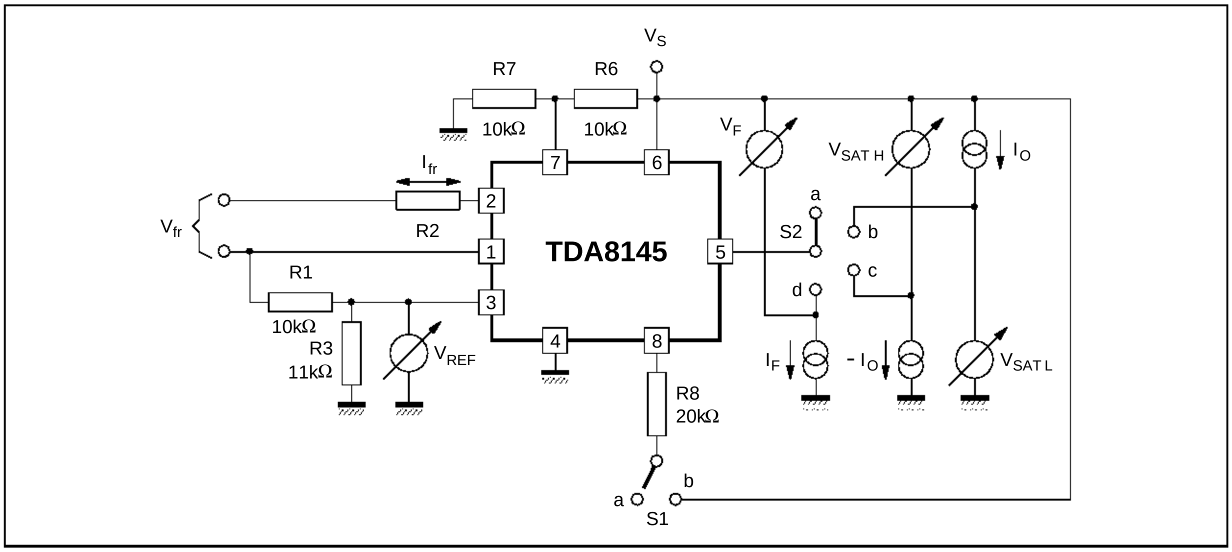
8145-03.TBL

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C, V_S = 26V, V_{fr} = 0, S1 and S2 in "a" position, refer to the test circuit unless otherwise specified) (continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
K_1	Parabola Coefficient (see Figure 2)	$K_1 = \frac{V_{7A} - V_{7B}}{V_{7A} - V_{7C}}$		0.26		
K2	Parabola Coefficient (see Figure 2)	$K_2 = \frac{V_{7A} - V_{7C}}{V_{7A} - V_{7D}}$		0.70		
ΔV_7 (*)		$\Delta V_7 = V_{7E} - V_{7F}$	– 40		40	mV
I_8	Current Source	S1 → b		100		μA
V_{SATL}	Saturation Voltage	I_o = 400 mA Sink S2 → b		1	2	V
V_{SATH}	Saturation Voltage	I_o = 100 mA Source S2 → c S1 → b		0.8	1.5	V
V_F	Forward Voltage	I_o = 400 mA S2 → d S1 → b		1.2	1.7	V
I_{fr}	Frame Sawtooth Current	V_{fr} = 6.6 V_{pp}		66		μA

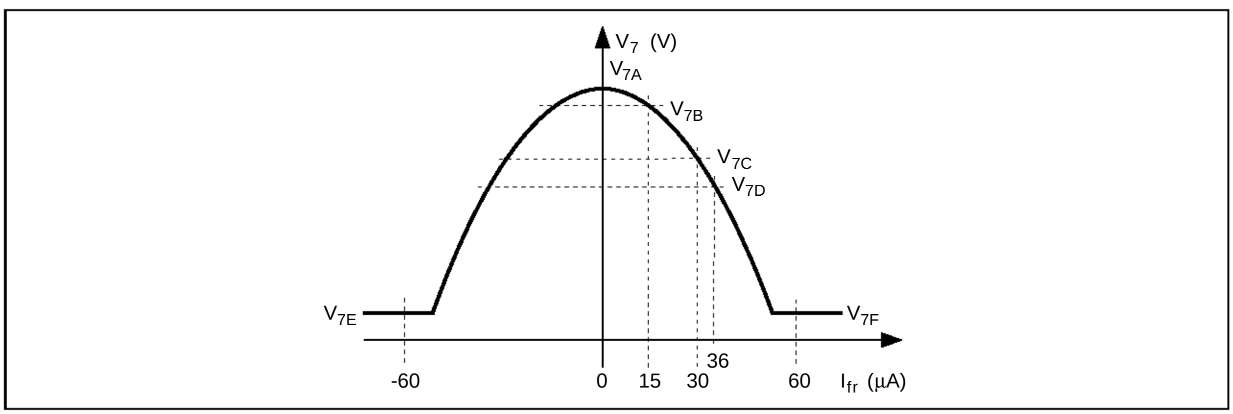
8145-04.TBL

Figure 1 : Test Circuit



8145-03.EPS

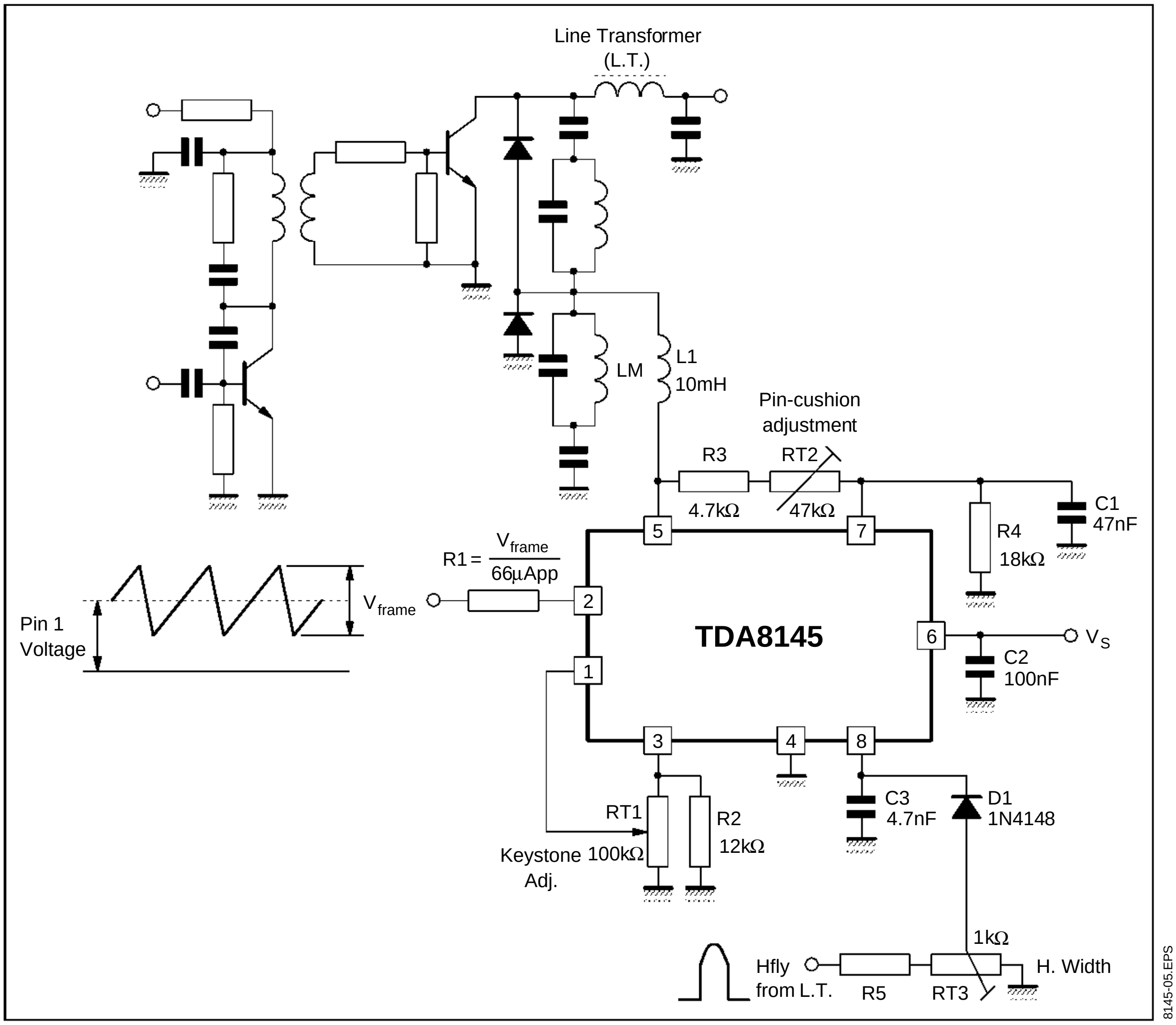
Figure 2 : Parabola Characteristics



8145-04.EPS

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APPLICATION CIRCUIT WITH KEYSTONE CORRECTION



CIRCUIT OPERATION (see the schematic diagram)

A differential amplifier OP1 is driven by a vertical frequency sawtooth current of ± 33µA which is produced via an external resistor from the sawtooth voltage. The non–inverting input of this amplifier is connected with a reference voltage corresponding to the DC level of the sawtooth voltage. This DC voltage should be adjustable for the keystone correction. The rectified output current of this amplifier drives the parabola network which provides a parabolic output current.

This output current produces the corresponding voltage due to the voltage drop across the external resistor at pin 7.

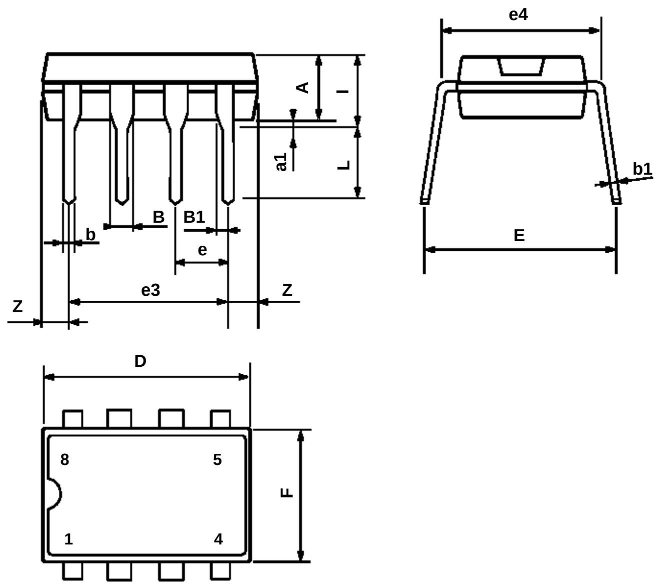
If the input is overmodulated (> 40µA) the internal current is limited to 40µA. This limitation can be used for suppressing the parasitic parabolic current generated during the flyback time of the frame sawtooth.

A comparator OP2 is driven by the parabolic current. The second input of the comparator is connected with a horizontal frequency sawtooth voltage the DC level of which can be changed by the external circuitry for the adjustment of the picture width.

The horizontal frequency pulse–width modulated output signal drives the final stage. It consists of a class D push–pull output amplifier that drives, via an external inductor, the diode modulator.

PACKAGE MECHANICAL DATA

8 PINS - PLASTIC DIP



PM-DIP8.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0260
i			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060

DIP8.TBL